

**ABSTRACT OF THE DISCLOSURE**

Process for the removal of oxygen from a gas mixture comprising oxygen, at least one olefin, hydrogen, carbon monoxide and optionally at least one alkyne, the ratio of oxygen : hydrogen in the gas mixture being 1 part by volume of oxygen to at least 5 parts by volume of hydrogen. The process comprises contacting the gas mixture with a catalyst in a reaction zone under conditions sufficient to oxidise at least a portion of the hydrogen and to oxidise at least a portion of the carbon monoxide and without significant hydrogenation of the at least one olefin. The catalyst comprises at least one metal or oxide of a metal from the 10<sup>th</sup> group of the Periodic Table of Elements, the metal or oxide of the metal being supported on an oxide support, provided that the catalyst also comprises tin.